HVAC – Upstream HVAC Equipment Subprogram

	Mission
SW Program: **Residential and Commercial HVAC Program**	The Residential and Commercial HVAC Program is a Statewide program that will continue the transformation process of California's HVAC market to ensure that: • HVAC technology, equipment, installation, and maintenance are of the highest quality; • Quality installation and maintenance practices are easily recognized and requested by customers; • The HVAC value chain is educated and understands their involvement with energy efficiency and peak load reduction; and • The above changes lead to sustained profitability for HVAC trade allies as the business model for installing and maintaining heating and cooling systems changes from a commodity-based to a value-added service business.
SW Sub-program: **Upstream HVAC Equipment**	This sub-program offers incentives to distributors who sell qualifying high-efficiency HVAC equipment. The logic that underscores this sub-program's design is that a small number of distributors and manufacturers are in a position to impact hundreds of thousands of customers and influence their choice of equipment by increasing the stocking and promotion of high-efficiency HVAC equipment. The upstream model cost-effectively leverages this market structure and existing relationships. The sub-program also provides an online rebate application system to facilitate distributor sales and invoice tracking, which further reduces administrative costs as compared with paper application processing.

CA EESP Goals/Strategies Addressed by SW Sub-program:	**CA EESP Ref. pp. #**
Goal (4) New climate-appropriate HVAC technologies (equipment and controls, including system diagnostics) are developed with accelerated market penetration Goal Results: At least 15% of equipment shipments are optimized for California's climate by 2015 and 70% by 2020.	p. 59
Strategy 4-3: Accelerate market penetration of advanced technologies by HVAC industry promotions and updating/expanding current utility programs to include new technologies as appropriate.	p. 65

Short-term (2010-2012) "SMART" Sub-program Objectives:	**Source (SP, AL, DR, PIP, or**	**IOU Comments**

	Staff)*	
1. By 2012 the sales weighted average efficiency of air conditioners sold by participating distributors will increase by XX% (intent to increase sales of high efficiency air conditioning in market place—sales metric/tracking sales) Define what "efficiency metric" is: SEER, EER, IEER (IPLV – older version) >5.4 tons → measure based on EER or IEER <5.4 tons → then no part load value then SEER or EER This (sales weighted sold) would be a great thing to track but availability is the barrier (sales data is difficult – ED believes this is the kind of data utilities should be trying to get. Why can't joint utilities sit down with distributors and push them to deliver data even on an aggregate basis) • Distributors get a lot of ratepayer $ so we can push them (also can work w/ hardi, who collects all the distributor data anyways. PGE said it may be a possible approach to get Hardi to aggregate the data and provide to utilities) **General agreement: Maybe refine util proposed one (preferred uses numerator and denominator and backup is just the numerator - # units incentivized that meet CEE Tier 2 or greater), but keep ours with caveat about data availability (and Hardi approach)**. • ACTION – joint utils propose their refined response (preferred and backup) • ACTION – James propose definition of efficiency metrics	Staff	**Objective 1:** By 2012, the kW/ton of units incentivized in the program will decrease by a target percentage A, and the number of units incentivized in the program will increase by a target percentage B vs. units over 5.4 tons shipped into California. Baselines for targets A and B to be set using 2010 data, and percentage increase targets A and B for 2011 and 2012, to be all established via an annual metrics report submitted Q1, 2011. **Note:** kW/ton, as determined by kW savings in CPUC approved workpapers, is an efficiency metric that can apply across types and capacities of equipment, thereby resolving the multiple specification issue of SEER, EER, IEER, and IPLV.
2. By 2012, the stock-weighted average efficiency of air conditioners stocked by participating distributors will increase by xx% (intent to increase stocking of high efficiency air conditioners—stock metric with a focus on sales/tracking stock)	Staff	**Objective 2:** By 2012, via annual survey of participating distributors, the stocking percentage of units eligible for program incentives increases by X% X% increase and baseline established via survey and metrics report submitted Q1, 2011. **Note**: Assumes the availability of individual distributor data and/or aggregated data from HARDI.

Short-term <u>Sub-program</u> PPMs:	Source (SP, AL, DR, PIP, or Staff)*	Metric Type (2a or 2b)**	Baseline Study Required (Y/N)	IOU Comments
1. The sales weighted average efficiency of air conditioners sold by participating distributors	Staff	2A (either utility refined or ED caveat would be 2a)	Y (No – so not a study but more like a data request. Depends on what info is available, does it have all the data we need access to, how far back and costs (reformatting costs)	**PPM 1:** kW/ton incentivized in the program. (Note: Decrease in metric indicates positive progress), combined with the number of units that are incentivized in the program vs. units over 5.4 tons shipped to California as tracked through AHRI shipment data. (Assuming the availability of AHRI data.) **Note:** Qualifying equipment eligible for program incentives has higher than code-standard efficiencies, with tiered minimum specifications increasing as state and federal standards increase. **Baseline Study Required: N** Recommend no baseline study required, due to basic-data nature of proposed PPM.
2. NEW – Proposed.				**PPM 2:** The distributor stocking percentage of units eligible for program. (Assuming the availability of individual distributor data and/or aggregated data from HARDI.) **Note:** Qualifying equipment eligible for the program has higher than code-standard efficiencies, with tiered minimum specifications increasing as state and federal standards increase. **Baseline Study Required: YES**

				Recommend baseline study required, since there is not yet a clear understanding of distributor stocking practices and what data is or could be maintained and obtained.

**SP=Strategic Plan, AL=Advice Letter, DR=Data Request Response, PIP=program plans, Staff=ED proposed. [Include page reference when applicable.]*
***Metric type: 2a = reported annually, 2b = reported by end of cycle.*

Long-Term (2013-2020) "SMART" <u>Sub-program</u> Objectives:	**Source (SP, AL, DR, PIP, or Staff)***	**IOU Comments**
1. By 2020, new climate-appropriate HVAC technologies particularly suited to California's climate will increase market share. Move this up to the program level and not the sub-program level. ETP and C&S may be more appropriate to meet this objective LT objective are more universal	SP, page 64	**LT Objective 1:** By 2020, new climate-appropriate HVAC technologies particularly suited to California's climate will increase market share. IOU-CPUC collaboration and baseline study would be required to more clearly define terms used and for setting appropriate LT targets and timeline. **Note:** Agree should move this up to the program level and not the sub-program level. ET and C&S program areas may be more appropriate to meet this objective.
2. At least 50% of equipment shipments are optimized for California's climate by 2020 and 70% by 2030	SP, page 58	**LT Objective 2:** By 2020, a target percentage of equipment shipments to CA are optimized for California's climate, with a higher percentage target achieved by 2030. IOU-CPUC collaboration and baseline study would be required to more clearly define terms used and for setting

		appropriate LT targets and timeline. **Note:** Move this up to the program level and not the sub-program level. ET and C&S program areas may be more appropriate to meet this objective.

**SP=Strategic Plan, AL=Advice Letter, DR=Data Request Response, PIP=program plans, Staff=ED proposed. [Include page reference when applicable.]*

Long-Term Sub-program MT Indicators:	**Source (SP, AL, DR, PIP, or Staff)***	**Metric Type (3)****	**Baseline Study Required (Y/N)**	**IOU Comments**
1. Market penetration of climate-appropriate HVAC technologies particularly suited to California's climate	Staff; SP pg 65	3	Y	**LT Objective 1:** Market penetration of climate appropriate HVAC equipment. **Note:** IOU-CPUC collaboration and baseline study would be required to more clearly define terms used and for setting appropriate LT targets and timeline.

**SP=Strategic Plan, AL=Advice Letter, DR=Data Request Response, PIP=program plans, Staff=ED proposed. [Include page reference when applicable.]*
***Metric type: 3 = data collection, tracking, and reporting [by IOUs, CPUC staff, and/or other entities] to be determined later.*

HVAC – Residential Energy Star Quality Installation Subprogram

	Mission
SW Program: **Residential and Commercial HVAC** SCE-SW-007, PGE2106, SDGE3151, SCG3657	The Residential and Commercial HVAC Program is a Statewide program that will continue the transformation process of California's HVAC market to ensure that: • HVAC technology, equipment, installation, and maintenance are of the highest quality; • Quality installation and maintenance practices are easily recognized and requested by customers; • The HVAC value chain is educated and understands their involvement with energy efficiency and peak load reduction; and • The above changes lead to sustained profitability for HVAC trade allies as the business model for installing and maintaining heating and cooling systems changes from a commodity-based to a value-added service business.
SW Sub-program: : **Residential Energy Star Quality Installation** SCE-SW-007d, PGE21064, SDGE3145, SCG3651	This sub-program is applicable to installations of central air conditioning (CAC) systems and air-source heat pump (HP) systems, with a rated capacity up to 65,000 BTU/H. Through this sub-program, a financial incentive will be available to homeowners who have a system installed in accordance with the EPA HVAC Quality Installation Guidelines. The installation requirements are illustrated in detail in ANSI/ACCA 5 QI-2007: HVAC Quality Installation Specification. In addition to this incentive, homeowners will also receive an ENERGY STAR® certificate for their qualifying installation. Contractors will be actively recruited into the sub-program by being offered the opportunity to receive performance incentives, such as utility co-branding opportunities, and diagnostic equipment for reaching specific performance milestones.

CA EESP Goals/Strategies Addressed by SW Sub-program:	**CA EESP Ref. pp. #**
Goal (2) Quality installation and maintenance becomes the industry and market norm. The marketplace understands and values the performance benefits of Quality Installation and Quality Maintenance. Goal Results: By 2020 100 percent of systems are installed to quality standards and optimally maintained throughout their useful life.	p.61
Strategy 2-1: Create a statewide Quality Installation and Maintenance (QI/QM) brand that will be attached to systems/installations/contractors that meet quality standards.	p.62
Strategy 2-3: Develop and provide expanded QI/QM training for contractors, technicians and sales agents.	p.63
Strategy 2-4: Develop and implement comprehensive contractor accreditation program.	p.63

Short-term (2010-2012) "SMART" Sub-program Objectives:	Source (SP, AL, DR, PIP, or Staff)*	IOU Comments
Objective 1 – By 2012, XX% of Residential HVAC systems in the IOUs' service area are installed to the Energy Star Residential Quality Installation standard.	**Staff**	**Objective 1:** By end of 2012, increase the number of HVAC contracting companies that are participating in statewide residential QI program as a share of the targeted market (TM = number of C-20 licensed HVAC contractors in CA). Baseline number reported and target set in annual metrics report submitted in Q1, 2011. **Note:** Participation is defined as HVAC contracting companies with signed program participation agreement.
Objective 2 – Residential customers begin to demand Quality Installations from contractors.	**Staff**	**Note**: Suggest replacing proposed objective 2, because it is not quantifiable, with the following: **Objective 2:** Increase average percentage of "certified" HVAC technicians within each contracting company that participates in the residential QI program. Baseline number reported and target set, including the definition of "certified" set for each IOU service territory, in annual metrics report submitted in Q1, 2011. **Note:** Participation is defined as HVAC contracting companies with signed program participation agreement. And "certified" is understood to be a minimum standard qualification for performing work using Quality Installation standards,

		and could include NATE certification, or other equivalent or higher demonstrated skill level, such as an appropriate union training level.

IOU proposed metric: adoption of statewide QI standards by Q2 2011. (eligibility guideline, what does QI mean in terms of our programs)

Short-term <u>Sub-program</u> PPMs:	**Source (SP, AL, DR, PIP, or Staff)***	**Metric Type (2a or 2b)****	**Baseline Study Required (Y/N)**	**IOU Comments**
PPM 1 – Percentage of participating contractors and technicians, as a share of the target market, trained and using Residential Quality Installation methods. **ACCEPTED Proposed #4: % of contractors that participating in res QI program as a share of the targeted market (TM = licensed HVAC contractors).** **ACTION ITEM: IOU look at these and come back with cleaned up language.** Proposed: Percentage/Number of participating contractors and technicians that understand and have adopted Res QI methods as part of their business practice within the program themselves. (subset who have gone from apportion of their jobs from this standard to going to all of their jobs at this standard). An increase in the # of QI installations. **Proposed #2: Average # of jobs per participating contractor (as percent of total jobs) that meet QI standards. (you have a participant that submitted 5 jobs, how many of those make it through – this is not a % of all the jobs)** **ACCEPTED Proposed #3: Average # of jobs being submitted (10 jobs in one year, but 5 fail. As you increase from 10 to 15, the long term goal would be how is that affecting your business) to the program that meet QI standards per year, and monitoring the subsequent jobs.**	**Staff**	**2 B**	**Y**	**PPM 1:** Percentage of HVAC contracting companies that are participating in statewide residential QI program as a share of the targeted market (TM = C-20 licensed HVAC contracting companies in CA). **Note:** Participation is defined as HVAC contracting companies with signed program participation agreement. **Baseline Study Required: N** Recommend no baseline study required; a data request would be more

What % of business are you impacting. And is the bulk of contractor base doing it? If this is part of data collection then no this data won't be ready by end of year. **Program collection can find out how many contractors participating and hone down how many were active in SCE service territory.** What is the number of participating contractors as a percent of the total eligible market of contractors? ED: in the entire contractor market, what % are targeted markets participating in your programs**. # of participating contractors as a percent of the total eligible market of contractors.** (Utils – out of utility control. It's a business decision). Three parts: 1. participating contractors in the program (those who have gone through the training); 2. employment of those practices; 3. Util: both what is happening through program and what program parts are doing outside of the program Of the market that you are trying to penetrate, what % participate? Util – would take Alliance to get that number and would be more down the road When you launch there are 150 interested, but at the end there are only 20, this metric does not capture what was truly happening in the market. If there are 10 contractors, we'd have to look at every proposal of what they are doing. SCE: Of the ones that are in, here is what you are getting in terms of business practices. But entire market question is ambiguous. Proposed metric: Start with participating contractors. Did you have a launch, did you have a training session, how many come into the program. Customer satisfaction is a key indicator of success. Are we in major publication, in trade shows. How many have adopted these practices? What is it about a QI that makes it better and more valuable. If you put metric around those that participate you'll see the change. Brett suggestion: How many project go through energystar or how many				appropriate.

contractors make it through energystar. (everyone who goes through energy star does not have to go through program) Energystar project in the broader marketplace. SCE proposed: levels of customer satisfaction. Can we get what % of all jobs you do to meet this standard? SCE hasn't done that. But would be fairly straightforward. Out of total staff, how many are certified?				
PPM 2 – Weighted average percentage of certified technicians among participating contractors PGE does not require 50% SDGE will have information SCE has that data when they sign participation agreement Re-surveying is doable on SCE, PGE would be interested in doing. SDGE take the lead to implement a statewide contractor selection process	**Staff**	**2 B**	**Y**	**PPM 2:** Average percentage of "certified" HVAC technicians within each contracting company that participates in the residential QI program. **Note:** Participation is defined as HVAC contracting companies with signed program participation agreement. And "certified" is understood to be an agreed appropriate minimum standard qualification for

				performing work using Quality Installation standards in an IOU service territory, and could include NATE certification, or other equivalent or higher demonstrated skill level, such as an appropriate union training level. **Baseline Study Required: N** Recommend no baseline study required; a data request would be more appropriate.

**SP=Strategic Plan, AL=Advice Letter, DR=Data Request Response, PIP=program plans, Staff=ED proposed. [Include page reference when applicable.]*
***Metric type: 2a = reported annually, 2b = reported by end of cycle.*

Long-term (2013-2020) "SMART" Sub-program Objectives	Source (SP, AL, DR, PIP, or Staff)*	IOU Comments
Objective 1 – By 2020, 100% of Residential HVAC systems in California are installed to the Quality Installation standard.	**SP**	**LT Objective 1:** By 2020, a target percentage of Residential HVAC systems installed by participating contractors comply with Quality Installation standards.**Note**: The current statewide HVAC program is laying the foundation for defining the

		Quality Installation standards to be used in statewide program efforts, and this foundation, further IOU-CPUC collaboration, interaction with the HVAC industry via the Western HVAC Performance Alliance, and a baseline study will then enable a better determination of subsequent practical and obtainable short-, medium- and long-term objectives and market transformation indicators. (100% is a useful theoretical vision to aim for in CA's efforts, but that absolute number is not reasonable as a hard target because it is not realistically attainable.)
Objective 2 – Residential customers demand Energy Star Quality Installations from contractors.	Staff	**Note**: Agree with vision, but it is not yet clear how this can be measured. Further IOU-CPUC collaboration and a baseline study would be required to more clearly define terms used and for setting appropriate LT target and timeline. This is a metric not an objective.

**SP=Strategic Plan, AL=Advice Letter, DR=Data Request Response, PIP=program plans, Staff=ED proposed. [Include page reference when applicable.]*

Long-Term Sub-program MT Indicators:	Source (SP, AL, DR, PIP, or Staff)*	Metric Type (3)**	Baseline Study Required (Y/N)	IOU Comments
MT Indicator 1 – Identify the percentage change in the use of Quality Installation guidelines among all California Residential HVAC installation contractors.	**Staff**	**3**	**Y**	**Note**: Agree with vision, but it is not yet clear how this can be measured. Further IOU-CPUC collaboration and a baseline study would be required to more clearly define terms used and for setting appropriate LT target and timeline. **MT Indicator 1:** Identify the percentage change in the use of Quality Installation guidelines among all California

				Residential HVAC installation contractors. **Note:** Agree baseline study is required.

HVAC – Commercial Quality Installation Subprogram

	Mission
SW Program: **Residential and Commercial HVAC** SCE-SW-007, PGE2106, SDGE3151, SCG3657	The Residential and Commercial HVAC Program is a Statewide program that will continue the transformation process of California's HVAC market to ensure that: • HVAC technology, equipment, installation, and maintenance are of the highest quality; • Quality installation and maintenance practices are easily recognized and requested by customers; • The HVAC value chain is educated and understands their involvement with energy efficiency and peak load reduction; and • The above changes lead to sustained profitability for HVAC trade allies as the business model for installing and maintaining heating and cooling systems changes from a commodity-based to a value-added service business.
SW Sub-program: : **Commercial Quality Installation** SCE-SW-007c, SDGE21063, SDGE3146, SCG3652	This sub-program is applicable to installations of packaged HVAC systems, with a rated capacity up to 760,000 BTU/H. Through this sub-program, a financial incentive will be available to contractors who complete a system installation in accordance with the appropriate industry standards (e.g., ACCA, SMACNA and ASHRAE). Contractors will be actively recruited into the program by offering them the opportunity to receive financial and performance incentives such as utility co-branding opportunities, diagnostic equipment for reaching specific performance milestones, and assistance aligning with the ENERGY STAR® Service & Product Provider program.

CA EESP Goals/Strategies Addressed by SW Sub-program:	**CA EESP Ref. pp. #**
Goal (2) Quality installation and maintenance becomes the industry and market norm. The marketplace understands and values the performance benefits of Quality Installation and Quality Maintenance.	p.61

Goal Results: By 2020 100 percent of systems are installed to quality standards and optimally maintained throughout their useful life.	
Strategy 2-1: Create a statewide Quality Installation and Maintenance (QI/QM) brand that will be attached to systems/installations/contractors that meet quality standards.	p.62
Strategy 2-3: Develop and provide expanded QI/QM training for contractors, technicians and sales agents.	p.63
Strategy 2-4: Develop and implement comprehensive contractor accreditation program.	p.63

Short-term (2010-2012) "SMART" Sub-program Objectives:	**Source (SP, AL, DR, PIP, or Staff)***	**IOU Comments**
Objective 1 – By 2012, XX% of Commercial HVAC systems in the IOUs' service area are installed to the Quality Installation standard.	**Staff**	**Objective 1:** By 2012, increase the number of HVAC contracting companies that are participating in statewide commercial QI program as a share of the targeted market (TM = number of C-20 licensed HVAC contractors in CA). Baseline number reported and target set in annual metrics report submitted in Q1, 2011). **Note:** Participation

		is defined as HVAC contracting companies with signed program participation agreement.
Objective 2 – Commercial customers begin to demand Commercial Quality Installations from contractors.	**Staff**	**Note:** Suggest replacing proposed objective 2, because it is not quantifiable, with the following: **Objective 2:** Increase average percentage of certified HVAC technicians within each contracting company that participates in the commercial QI program. Baseline number reported and target set , including the definition of "certified" set for each IOU service territory, in annual metrics report submitted in Q1, 2011). **Note:** Participation is defined as HVAC contracting companies with

		signed program participation agreement. And "certified" is understood to be a minimum standard qualification for performing work using Quality Installation standards, and could include NATE certification, or other equivalent or higher demonstrated skill level, such as an appropriate union training level.

Short-term <u>Sub-program</u> PPMs:	**Source (SP, AL, DR, PIP, or Staff)***	**Metric Type (2a or 2b)****	**Baseline Study Required (Y/N)**	**IOU Comments**
PPM 1 - Percent of participating contractors and technicians, as a share of the target market, trained and using Commercial Quality Installation methods. (see res QI)	Staff	2 B	Y	**PPM 1:** Percentage of HVAC contracting companies that are participating in statewide commercial QI program as a share of the targeted

				market (TM = C20 licensed HVAC contracting companies in CA). **Note:** Participation is defined as HVAC contracting companies with signed program participation agreement. **Baseline Study Required: N** Recommend no baseline study required; a data request would be more appropriate.
PPM 2 – Weighted average percentage of certified technicians among participating contractors (i.e., above the 70% eligibility rule). (see res QI)	Staff	2 B	Y	**PPM 2:** Average percentage of "certified" HVAC technicians within each contracting company that participates in the commercial QI program. **Note**: Participation is defined as HVAC contracting companies with signed program participation

				agreement. And "certified" **is understood to be an agreed appropriate minimum standard qualification for performing work using Quality Installation standards in an IOU service territory, and could include NATE certification, or other equivalent or higher demonstrated skill level, such as an appropriate union training level.** **Baseline Study Required: N** Recommend no baseline study required; a data request would be more appropriate.

**SP=Strategic Plan, AL=Advice Letter, DR=Data Request Response, PIP=program plans, Staff=ED proposed. [Include page reference when applicable.]*
***Metric type: 2a = reported annually, 2b = reported by end of cycle.*

Long-term (2013-2020) "SMART" Sub-program Objectives	Source (SP, AL, DR, PIP, or Staff)*	IOU Comments

Objective 1 – By 2020, 100% of Commercial HVAC systems in California are installed to the Quality Installation standard.	**SP**	**Objective 1 :** By 2020, a target percentage of Commercial HVAC systems installed by participating contractors comply with Quality Installation standards. **Note**: The current statewide HVAC program is laying the foundation for defining the Quality Installation standards to be used in statewide program efforts, and this foundation, further IOU-CPUC collaboration, interaction with the HVAC industry via the Western HVAC Performance Alliance, and a baseline study will then enable a better determination of subsequent practical and obtainable short-, medium- and long-term objectives and market transformation indicators. (100% is a useful theoretical vision to aim for in CA's efforts, but that absolute number is not reasonable as a hard target because it is not realistically attainable.)
Objective 2 – Commercial customers demand Commercial Quality Installations from contractors.	**Staff**	**Agree** with vision, but it is not yet clear how this can be measured. Further IOU-CPUC collaboration and a baseline study would be required to more clearly define terms used and for setting appropriate LT target and

		timeline. This is a metric and not an objective.

**SP=Strategic Plan, AL=Advice Letter, DR=Data Request Response, PIP=program plans, Staff=ED proposed. [Include page reference when applicable.]*

Long-Term Sub-program MT Indicators:	**Source (SP, AL, DR, PIP, or Staff)***	**Metric Type (3)****	**Baseline Study Required (Y/N)**	**IOU Comments**
MT Indicator 1 – Percentage change in the use of Quality Installation guidelines among all California Commercial HVAC installation contractors.	Staff	3	Y	**Note:** Agree with vision, but it is not yet clear how this can be measured. Further IOU-CPUC collaboration and a baseline study would be required to more clearly define terms used and for setting appropriate LT target and timeline. **MT Indicator 1:** Identify the percentage change in the use of Quality Installation guidelines among all California

				Commercial HVAC installation contractors. **Note:** Agree baseline study is required.

**SP=Strategic Plan, AL=Advice Letter, DR=Data Request Response, PIP=program plans, Staff=ED proposed. [Include page reference when applicable.]*
***Metric type: 3 = data collection, tracking, and reporting [by IOUs, CPUC staff, and/or other entities] to be determined later.*

HVAC – Quality Maintenance Development Subprogram

	Mission
SW Program: **Residential and Commercial HVAC** SCE-SW-007, PGE2106, SDGE3151, SCG3657	The Residential and Commercial HVAC Program is a Statewide program that will continue the transformation process of California's HVAC market to ensure that: • HVAC technology, equipment, installation, and maintenance are of the highest quality; • Quality installation and maintenance practices are easily recognized and requested by customers; • The HVAC value chain is educated and understands their involvement with energy efficiency and peak load reduction; and • The above changes lead to sustained profitability for HVAC trade allies as the business model for installing and maintaining heating and cooling systems changes from a commodity-based to a value-added service business.
SW Sub-program: **Quality Maintenance Development** SCE-SW-007e, PGE21065, SDGE3148, SCG3654	This sub-program may represent one of the more creative aspects of the HVAC "Big Bold Energy Efficiency Strategies." It is based on the assumption that energy and demand savings are achievable through the regular application of quality maintenance (QM) procedures applied to existing residential and commercial HVAC equipment. This sub-program intends to: • Quantify those potential savings; and • Develop and implement both a residential and commercial maintenance program focused on comprehensive, continuously improving O&M activities that capture those savings and provide a high return on investment to the end-user, thus driving the intense level of market transformation of the HVAC industry envisioned by the Strategic Plan. *The program:* *(1) Promotes industry standard practices through a comprehensive approach to HVAC servicing.* *(2) Demonstrates a clear value proposition to contractors for a profitable business opportunity based on providing QM.* *(3) Provides an effective training program to ensure that technicians can properly implement QM services.* (4) *Promotes benefits of QM and certified contractors to end-users.*

CA EESP Goals/Strategies Addressed by SW Sub-program:	**CA EESP Ref. pp. #**
Goal (2) Quality installation and maintenance becomes the industry and market norm. The marketplace understands and values the performance benefits of Quality Installation and Quality Maintenance.	p.61

Goal Results: By 2020, 100 % of systems are installed to quality standards and optimally maintained throughout their useful life.	
Strategy 2-1: Create a statewide Quality Installation and Maintenance (QI/QM) brand that will be attached to systems/installations/contractors that meet quality standards.	p.62
Strategy 2-3: Develop and provide expanded QI/QM training for contractors, technicians and sales agents.	p.63
Strategy 2-4: Develop and implement comprehensive contractor accreditation program.	p.63

Short-term (2010-2012) "SMART" Sub-program Objectives:	**Source (SP, AL, DR, PIP, or Staff)***	**IOU Comments**
Objective 1 –By 2012, Statewide Quality Maintenance standards are adopted and implemented in IOU programs	**Staff**	**Agreed.** **Objective 1**: By the end of 2012, Statewide Quality Maintenance standards are adopted and implemented in IOU programs.

Short-term Sub-program PPMs:	**Source (SP, AL, DR, PIP, or Staff)***	**Metric Type (2a or 2b)****	**Baseline Study Required (Y/N)**	**IOU Comments**
AGREED PPM 1 –Progress towards milestones in the development/finalization of Quality Maintenance standards used in this IOU program. - alliance has more granular information in terms of a project plan and milestones. - Development plan has milestones and alliance will provide those and what was complete to date. What reports are coming out to date. - **MEL ACTION ITEM: provide progress reports on status of adoption of deliverables from development plan specifically for commercial**	Staff	2 A	N	**PPM 1** –Measured progress towards specific milestones provided in the project GANTT chart indicating the development/finalization of this

IOUs before next wed: discuss what we can provide as a team. James want to make sure they can deliver. - Standards say this is what you do, utils have to report how they are meeting those standards -				IOU program based on Quality Maintenance standards.

**SP=Strategic Plan, AL=Advice Letter, DR=Data Request Response, PIP=program plans, Staff=ED proposed. [Include page reference when applicable.]*
***Metric type: 2a = reported annually, 2b = reported by end of cycle.*

Long-Term (2013-2020) "SMART" Sub-program Objectives:	**Source (SP, AL, DR, PIP, or Staff)***	**IOU Comments**
Objective 1 –By 2020, 100% of HVAC systems are optimally maintained in California	**SP**	**Objective 1: By 2020, a target percentage of Commercial HVAC systems maintained by statewide program participating contractors are optimally maintained in California.** **Note**: The current statewide HVAC program is laying the foundation for defining the Quality Maintenance standards to be used in statewide program efforts, and this foundation, further IOU-CPUC collaboration, interaction with the HVAC industry via the Western HVAC Performance Alliance, and a baseline study will then enable a better determination of subsequent practical and obtainable short-, medium- and long-term objectives and market transformation indicators. (**100% is** a useful theoretical vision to aim for in CA's efforts, but that absolute number is **not reasonable** as a hard target because it is not realistically attainable.)

Objective 2 – Increase in the percentage of homes and businesses awareness of and demand for Quality Maintenance services in California	**Staff**	**Agree** with vision, but it is not yet clear how this can be measured. Further IOU-CPUC collaboration and a baseline study would be required to more clearly define terms used and for setting appropriate LT target and timeline. This is a metric not an objective.

**SP=Strategic Plan, AL=Advice Letter, DR=Data Request Response, PIP=program plans, Staff=ED proposed. [Include page reference when applicable.]*

Long-Term Sub-program MT Indicators:	**Source (SP, AL, DR, PIP, or Staff)***	**Metric Type (3)****	**Baseline Study Required (Y/N)**	**IOU Comments**
MT Indicator 1 – Percent change in the employment of Quality Maintenance practices among all California HVAC contractors and technicians.	Staff	3	Y	**Note:** Agree with vision, but it is not yet clear how this can be measured. Further IOU-CPUC collaboration and a baseline study would be required to more clearly define terms used and for setting appropriate LT target and timeline.

				Note: Agree baseline study is required.

**SP=Strategic Plan, AL=Advice Letter, DR=Data Request Response, PIP=program plans, Staff=ED proposed. [Include page reference when applicable.]*

***Metric type: 3 = data collection, tracking, and reporting [by IOUs, CPUC staff, and/or other entities] to be determined later.*

HVAC – Technologies and System Diagnostics Subprogram

	Mission	IOU Comments
SW Program: **Residential and Commercial HVAC Program**	The Residential and Commercial HVAC Program is a Statewide program that will continue the transformation process of California's HVAC market to ensure that: • HVAC technology, equipment, installation, and maintenance are of the highest quality; • Quality installation and maintenance practices are easily recognized and requested by customers; • The HVAC value chain is educated and understands their involvement with energy efficiency and peak load reduction; and • The above changes lead to sustained profitability for HVAC trade allies as the business model for installing and maintaining heating and cooling systems changes from a commodity-based to a value-added service business.	
SW Sub-program: **Technologies & System Diagnostics Advocacy**	HVAC Technologies and System Diagnostics Advocacy is a coordinative and advocacy program that addresses the priority need for immediate and comprehensive action addressing elements critical to increasing, optimizing and maintaining the energy and peak electricity efficiency performance of direct expansion (DX)/vapor-compression–based cooling equipment and accelerating the market introduction of a range of advanced evaporative-based cooling technologies. The sub-program includes unprecedented participation by HVAC industry stakeholders in research, development, and design, continuous review and updating, and operation of HVAC-related IOU programs. This unprecedented cooperation and collaboration with the HVAC industry has the purpose of substantially advancing HVAC-related program quality and effectiveness. A continuous program improvement process will be introduced to provide an active, real-time means for improving program effectiveness and incorporating results between planning cycles.	Agreed with elimination of text.

CA EESP Goals/Strategies Addressed by SW Sub-program:	CA EESP Ref. pp. #
Goal (4) New climate-appropriate HVAC technologies (equipment and controls, including system diagnostics) are developed with accelerated market penetration (CEESP, p. 59) Goal Results: At least 15% of equipment shipments are optimized for California's climate	p. 59
Strategy 4-3: Accelerate market penetration of advanced technologies by HVAC industry promotions and updating/expanding current utility programs to include new technologies as appropriate.	p. 65
Strategy 4-5: Develop nationwide standards and/or guidelines for onboard diagnostic functionality and specifications for designated sensor mount locations.	p. 65

Short-term (2010-2012) "SMART" Sub-program Objectives:	Source (SP, AL, DR, PIP, or Staff)*	IOU Comments
By 2012, Industry-wide task force develops roadmap (i.e., plan and recommendations) to support the development of a national standard on board diagnostic protocol Definition of "roadmap": utils →plan and recommendation for the industry (industry, manuf actions), come up with data and recommendations. Utils should not define but industry should be involved with definitions ED → currently have a very long laundry list, but now need a roadmap. By 2012, focus on on-board diagnostics (should be the focus) Trane has not had these discussions yet	EESP, p. 65	**Note:** Agreed, with clarification. **Objective 1:** By the end of 2012, Industry-wide task force develops roadmap (i.e., plan and recommendations) to support the development of a national standard for on-board diagnostic protocol for use with unitary packaged HVAC systems.
By 2015, increase by xx% the availability of air conditioners with on board diagnostics, relative to 2010. - baseline data may not exist (or proprietary)	Staff	**Note:** Moved to long term objectives for next program cycle

different across all manufacturers - next program cycle - **DECISION – move to LT**		we proposed. language below. **Objective 2:** By 2015, increase the availability of unitary packaged HVAC systems with on-board diagnostics. Baseline and target to be set by the end of 2012.

Short-term <u>Sub-program</u> PPMs:	**Source (SP, AL, DR, PIP, or Staff)***	**Metric Type (2a or 2b)****	**Baseline Study Required (Y/N)**	**IOU Comments**
Status of progress towards completion of roadmap to support the development of a national standard diagnostic protocol (activities, concrete actions taken)	Staff	2A (status of progress would be reported annual)	N	**PPM 1:** Status of progress towards completion of roadmap (i.e., plan and recommendations) to support the development of a national standard diagnostic protocol (activities, concrete actions taken).
	Staff	2B	Y	**Note:** PPM 2 moved to long-term objectives for next program cycle. Baseline Study

				Required: Not certain. With move to LT, uncertain if baseline study would be required at this time.

**SP=Strategic Plan, AL=Advice Letter, DR=Data Request Response, PIP=program plans, Staff=ED proposed. [Include page reference when applicable.]*
***Metric type: 2a = reported annually, 2b = reported by end of cycle.*

Long-Term (2013-2020) "SMART" Sub-program Objectives:	**Source (SP, AL, DR, PIP, or Staff)***	**IOU Comments**
By 2015, federal minimum standards for diagnostic techniques are adopted. - utils: 2015 not realistic, just hope to be on agenda	Staff and SP (pg 65)	**LT Objective 1:** By 2020, state minimum standards for diagnostic techniques are adopted.

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Long-Term Sub-program MT Indicators:	**Source (SP, AL, DR, PIP, or Staff)***	**Metric Type (3)****	**Baseline Study Required (Y/N)**	**IOU Comments**
Code adoption of diagnostic standards (Y/N)	SP (pg 65)	3	N	**Note:** Agreed. **MT Indicator 1:** Code adoption of diagnostic standards (Y/N) **Note:** Further IOU-CPUC collaboration would be required to more clearly define terms used and for setting

				appropriate LT target and timeline.

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***Metric type: 3 = data collection, tracking, and reporting [by IOUs, CPUC staff, and/or other entities] to be determined later.*

HVAC – Workforce Education & Training Subprogram

	Mission
SW Program: **Residential and Commercial HVAC** SCE-SW-007, PGE2106, SDGE3151, SCG3657	The Residential and Commercial HVAC Program is a Statewide program that will continue the transformation process of California's HVAC market to ensure that: • HVAC technology, equipment, installation, and maintenance are of the highest quality; • Quality installation and maintenance practices are easily recognized and requested by customers; • The HVAC value chain is educated and understands their involvement with energy efficiency and peak load reduction; and • The above changes lead to sustained profitability for HVAC trade allies as the business model for installing and maintaining heating and cooling systems changes from a commodity-based to a value-added service business.
SW Sub-program: **Workforce Education & Training** SCE-SW-007f, PGE21066, SDGE3150, SCG36556	This sub-program will deliver a dedicated, industry-specific effort that offers education and training opportunities targeted at all levels of the HVAC value chain. Prior to starting such an activity, and as outlined in the Strategic Plan, the sub-program will conduct a comprehensive training-needs assessment to determine industry skill gaps, identify opportunities for collaboration with existing HVAC education and training infrastructure, and implement recommendations needed to close gaps at all levels of the industry.

CA EESP Goals/Strategies Addressed by SW Sub-program:	**CA EESP Ref. pp. #**
Goal (2) Quality installation and maintenance becomes the industry and market norm. The marketplace understands and values the performance benefits of Quality Installation and Quality Maintenance. Goal Results: By 2020 100 percent of systems are installed to quality standards and optimally maintained throughout their useful life.	p. 61
Strategy 2-1: Create a statewide Quality Installation and Maintenance (QI/QM) brand that will be attached to systems/installations/contractors that meet quality standards.	p. 62
Strategy 2-3: Develop and provide expanded QI/QM training for contractors, technicians and sales agents.	p. 63
Strategy 2-4: Develop and implement comprehensive contractor accreditation program.	p. 63
Goal (3) Whole building design and construction practices fully integrate building performance objectives to reduce cooling and heating loads.	p. 63

Goal Results: Integrated design and construction practices are standard practice by 2020	
Strategy 3-3: Accelerate HVAC related aspects of whole building design in the educational and professional communities	p. 64
(1) Provides training to contractors and technicians on industry standards/practices.	p. 64
(2) Works with industry training providers to encourage existing training curriculum include consistent messaging about industry QI/QM standards.	p. 64

Short-term (2010-2012) "SMART" Sub-program Objective: Curriculum Development	**Source (SP, AL, DR, PIP, or Staff)***	**IOU Comments**
Objective 1 – By 2012 work through the Alliance and stakeholders to identify reasonable goals for training and certification, including what we are getting from our industry, where it comes from, and the definitions for the industry. - plenty of places to get certified (which certification, how did they define QI, set of courses for cert..) - SCE: res it's easier to get the data (not in pge) but not so in commercial. 46,000 techs – quite an undertaking - PGE: does not have this data for res or com - Sempra: does not have this data for res or com (can track their own training but not the schools) - PGE does not the organization that does this work so they don't have that data readily tracked - **Agreement: this metric is not possible because of the infrastructure is not in place.** - **Best Metric: Work through alliance and take on that goal to establish that number for commercial. Can't be established today. By 2012 work with stakeholders to identify reasonable goals for training and certification. What are we getting from our industry and where it comes from. Have definitions as well – for Quality Installation, for example.** - **Alliance will lay out the structure (not definition yet) just getting the people first.** - ***Action item: utils by Wednesday to come with redefined language for this metric (take the discussion and make it look like the tech and systems diagnostic objective)*** - can we get estimate on this year this date how many tech trained and passing QI and QM - ashrae, acca → start here	Staff	**Note:** Agreed, with the required clarification per discussion from PPM meetings. **Objective 1:** By the end of 2012, work through the Western HVAC Performance Alliance to develop a detailed WE&T roadmap (plans, goals, timelines and recommendations).

Short-term <u>Sub-program</u> PPMs:	**Source (SP, AL, DR, PIP, or Staff)***	**Metric Type (2a or 2b)****	**Baseline Study Required (Y/N)**	**IOU Comments**
PPM 1 – Number of contractors and technicians trained in Quality Installation and Quality Maintenance and passing certification.	Staff	2 A	Y	**PPM 1:** Status of progress towards completion (activities, concrete actions taken) of detailed WE&T roadmap (plans, goals, timelines and recommendations). **Baseline Study Required: N** Recommend no baseline study required, due to nature of agreed final PPM suggestion.

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***Metric type: 2a = reported annually, 2b = reported by end of cycle.*

Long-Term (2013-2020) "SMART" <u>Sub-program</u> Objective: Course Availability	**Source (SP, AL, DR, PIP, or Staff)***	**IOU Comments**
Objective 1 – By 2020, the availability of Quality Installation and Quality Maintenance training courses and certification is widespread.	Staff	**Objective 1:** By 2020, courses using Quality Installation and Quality Maintenance standards are available in the IOU service territories.

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Long-Term Sub-program MT Indicators:	Source (SP, AL, DR, PIP, or Staff)*	Metric Type (3)**	Baseline Study Required (Y/N)	IOU Comments
MT Indicator 1 – Number of institutions offering Quality Installation and Quality Maintenance courses	Staff	3	Y	**MT Indicator 1:** Percentage of California HVAC-training institutions offering courses using Quality Installation and Quality Maintenance standards. **Note:** Further IOU-CPUC collaboration would be required to ensure clear definition of terms used and for setting appropriate LT target and timeline. **Note:** Agree baseline study is required.

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***Metric type: 3 = data collection, tracking, and reporting [by IOUs, CPUC staff, and/or other entities] to be determined later.*